CLAIMS

What is claimed is:

1. A coated article, comprising:

an article substrate having a free sulfur content of more than 0 but less than about 1 part per million by weight; and

a protective layer at a surface of the article substrate, the protective layer comprising a platinum aluminide diffusion layer.

2. The coated article of claim 1, wherein the article substrate has a yttrium content of no greater than about 200 parts per million by weight.

3. The coated article of claim 1, wherein the article substrate has a yttrium content of less than about 10 parts per million by weight.

Cancelled

4. The coated article of claim 1, wherein the article substrate has a yttrium content of from about 10 to about 200 parts million by weight.

Per Pre. Am.

5. The coated article of claim 1, further including

a ceramic layer overlying the protective layer.

6. The coated article of claim 5, wherein the ceramic layer is yttria-stabilized zirconia.

7. The coated article of claim 1, wherein the coated article is a component of a gas turbine aircraft engine.

8. The coated article of claim 1, wherein the coated article is selected from the group consisting of a turbine blade and a turbine vane.

Per Prelim - 9. The ~~coated~~ Cancelled article of claim 1, wherein the article substrate comprises a nickel-base alloy.

10. A method for preparing a coated article, comprising the steps of:

furnishing an article substrate comprising a nickel-base superalloy and having a free sulfur content of more than 0 but less than about 1 part per million by weight; and

forming a protective layer at a surface of the article substrate, the protective layer comprising a platinum aluminide diffusion coating.

11. The method of claim 10, wherein the step of forming a protective layer includes the steps of

depositing a sublayer of platinum overlying the surface of the article substrate,

depositing a sublayer of aluminum overlying the sublayer of platinum, and

interdiffusing a portion of the substrate, the sublayer of platinum, and the sublayer of aluminum.

12. The method of claim 10, wherein the article substrate has a yttrium content of no greater than about 200 parts per million by weight.

13. The method of claim 10, wherein the article substrate has a yttrium content of less than about 10 parts per million by weight.

14. The method of claim 10, wherein the article substrate has a yttrium content of from about 10 to about 200 parts million by weight.

15. The method of claim 10, including an additional step, after the step of forming, of

applying a ceramic layer over the protective layer.

16. The method of claim 15, wherein the ceramic layer is yttria-stabilized zirconia.

17. The method of claim 10, wherein the coated article is a component of a gas turbine aircraft engine.

18. The method of claim 10, wherein the coated article is selected from the group consisting of a turbine blade and a turbine vane.

19. The method of claim 10, wherein the article substrate comprises a nickel-base alloy.